

SPRING GAP STANISLAUS PROJECT

FERC No. 2130

DRAFT

PINECREST LAKE SHORELINE MANAGEMENT PLAN

LAND MANAGEMENT OBJECTIVES

April 3, 2012

PACIFIC GAS AND ELECTRIC COMPANY



Thank you for taking the time to learn more about the Shoreline Management Plan (SMP) for Pinecrest Lake. Pacific Gas & Electric Company and the Stanislaus National Forest value your input regarding the future of the shoreline and access to Pinecrest Lake. The SMP will help guide shoreline use and access to Pinecrest Lake over the period of the new license. It was developed to address current, near-term, and long-term conditions. As you read this Draft SMP, please note issues of concern and take the time to comment on those issues. We realize that there are concerns regarding issues at Pinecrest Lake that the Draft SMP does not, and will not, address. To assist us with refining the SMP, we encourage you to focus your comments on issues directly related to it. We will accept public comment on the Draft SMP through May 3, 2012.

When the final plan is issued, comments received at all public meetings will be summarized and placed into a table with responses. The table will be attached to the Final SMP.

Pacific Gas and Electric has created a website that contains information related to the SMP and other changes that will occur at Pinecrest Lake related to implementation of the Project License. Visit www.pinecrestlakeupdate.com to access the Draft SMP and supporting documents.

You may submit your comments regarding the SMP in any of three ways:

1. Go to www.pinecrestlakeupdate.com, and submit comments under the Shoreline Management Plan section of the site;
2. Email your comments to Justin Smith of PG&E at jtsg@pge.com; or
3. Mail your written comments to:

Justin Smith
PG&E
2730 Gateway Oaks Dr., Suite 220
Sacramento, CA 95833

Again, thank you for your interest in Pinecrest Lake!

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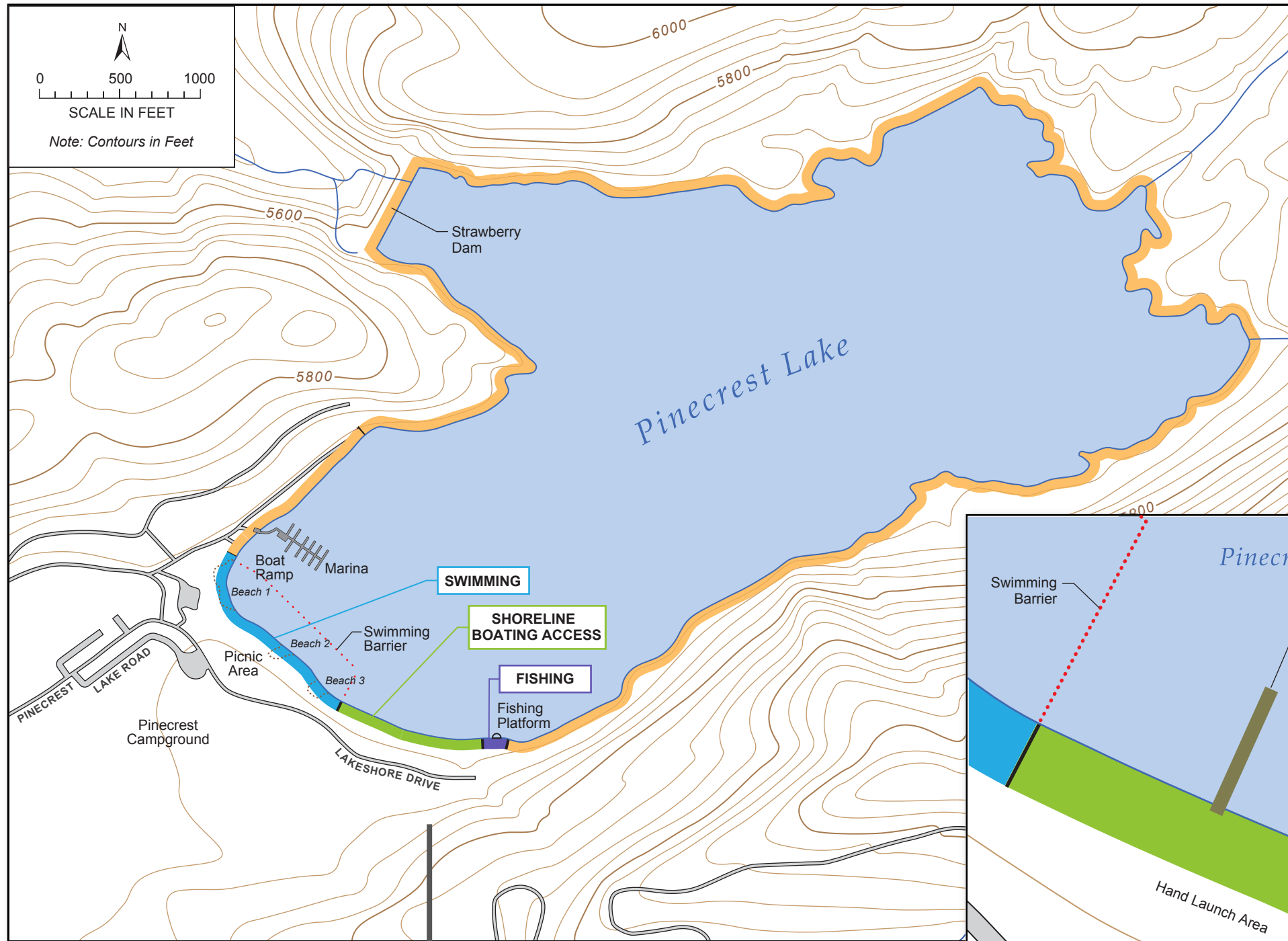
1.0 INTRODUCTION

Pinecrest Lake is a water storage reservoir that is part of Pacific Gas and Electric Company's (PG&E) Spring Gap-Stanislaus Hydroelectric Project (Project), No. 2130. Numerous land- and water-based recreation activities occur along the shoreline of Pinecrest Lake. The reservoir's elevation ranges from a maximum of 5,620 feet above sea level at full pool (300 surface acres) down to the Project's winter pool elevation of 5,585 feet above sea level. The reservoir is kept as full as possible during the summer recreation months consistent with operational demands and current license conditions. It typically fluctuates between 5,615 (289 surface acres) and 5,610 (269 surface acres) between Memorial Day and Labor Day. Pinecrest Lake is surrounded by the FERC boundary, within which are approximately 97 acres of Project land that provides a minimum horizontal distance from the high-water edge of about 10 feet and a maximum horizontal distance of about 320 feet, with typical horizontal distances from the high-water edge of about 200 feet.

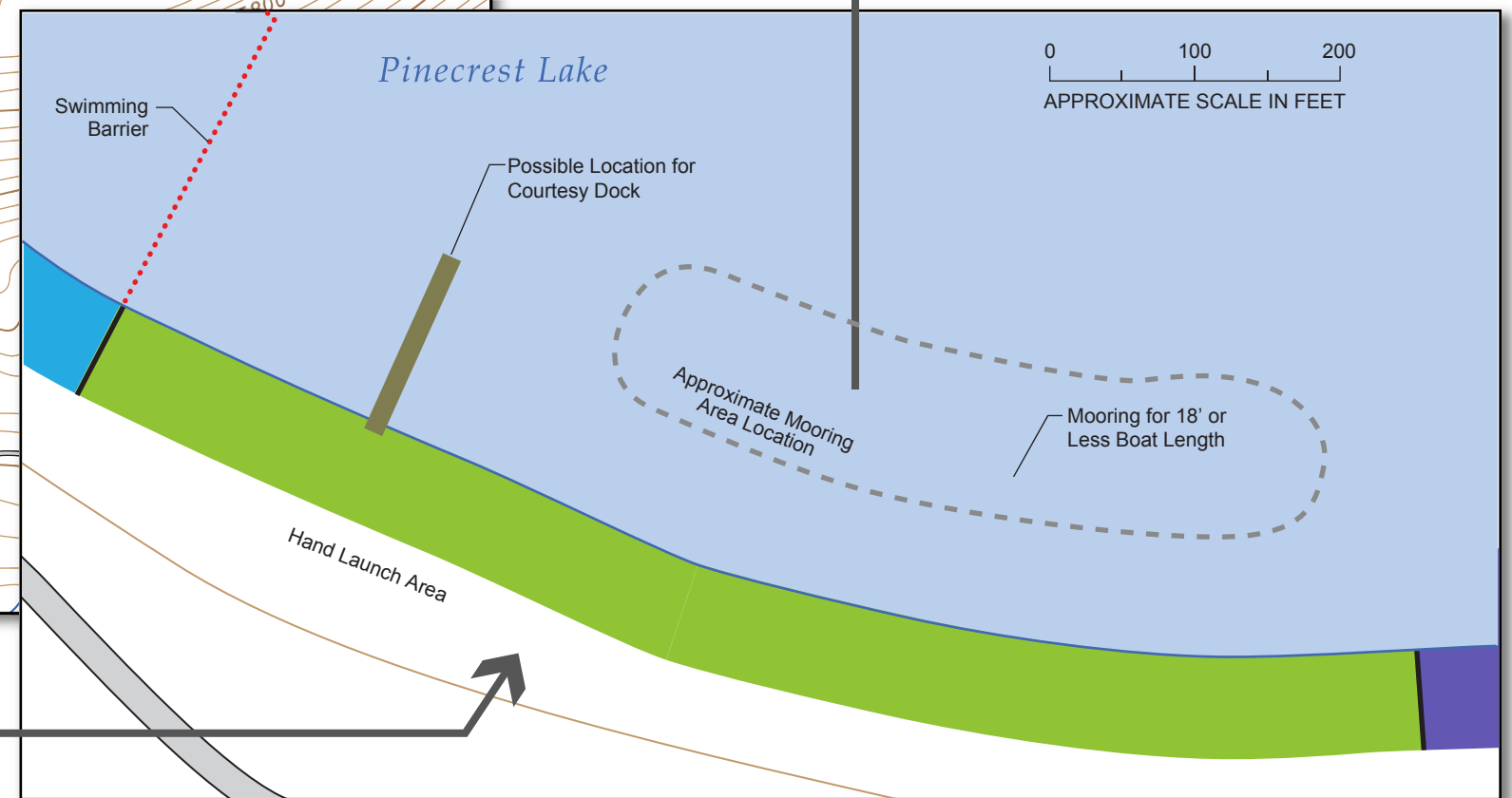
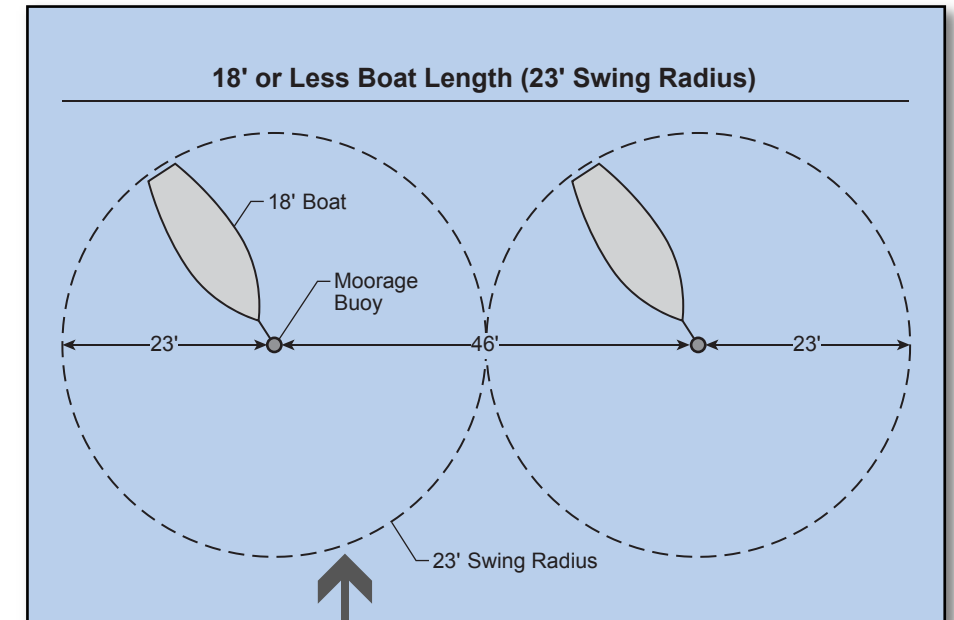
This Shoreline Management Plan (SMP) addresses shoreline uses within the Federal Energy Regulatory Commission (FERC) project boundary of Pinecrest Lake. The purpose of this SMP is to formulate a comprehensive policy for managing the reservoir's shoreline and providing public access to the waters of Pinecrest Lake in a manner that is consistent with the Project's primary purpose of power generation while balancing present and future recreation development with the need to provide a safe, enjoyable, and environmentally sensitive recreation experience. Because most of the Project is located on U.S. Forest Service (Forest Service) lands administered by the Stanislaus National Forest (STF), the SMP must also be consistent with the management directives contained within the STF Land and Resource Management Plan (Forest Service 2010). This SMP addresses a number of existing shoreline issues identified during relicensing, is consistent with the STF Land and Resource Management Plan (Forest Plan) and will help ensure that future generations have the opportunity to enjoy the recreation opportunities found at Pinecrest Lake.

This SMP's Shoreline Management Program (Section 4.0) provides most of the guidance related to how the shoreline of Pinecrest Lake will be managed. The program involves identifying specific use areas where different types of shoreline uses are encouraged and others are discouraged or prohibited. Section 4.1, Shoreline Use Areas, describes these use areas and Exhibit 1 depicts their locations. The three use areas are Swimming, Fishing, and Shoreline Boating Access.





Additional shoreline uses and issues (personal property left on the shoreline, docks, and commercial marina logbooms) are identified along with guidelines related to them in Section 4.2, General Shoreline Permitted Uses and Guidelines. General uses that are prohibited along the shoreline of Pinecrest Lake (camping on the shoreline; overnight use of watercraft; fires, barbecues, and burning; non-commercial marina log booms; motorized vehicles on shoreline; and jet skis) are identified in Section 4.3, General Shoreline Uses Not Allowed, and Section 4.4, Other Requirements and Conditions, describes compliance with laws, boating safety and rules, compliance with the SMP, trash management, and lake levels. It also identifies enforcement responsibilities of the STF, PG&E, and Tuolumne County. Section 5.0, Special Use Permit Process, describes the process for requesting and granting a special use permit for proposed actions within the FERC boundary and provides contact information.



Approximate Distance Between Mooring Buoys for 18' Watercraft



Shoreline Use Areas

Shoreline Use Areas	
	Fishing Area
	Shoreline Boating Access Area
	Swimming Area
	General Use

Note: All locations are approximate

Conceptual Mooring Area

Exhibit 1
Shoreline Use Areas
Draft Shoreline Management Plan
Conceptual Mooring Area
Pinecrest Lake

Spring Gap-Stanislaus
Hydroelectric Project
FERC Project No. 2130

2.0 OVERVIEW

PG&E (the Licensee) operates Pinecrest Lake, holds the FERC license for the Project, and is responsible for managing lands and waters within the FERC boundary of the Spring Gap-Stanislaus Hydroelectric Project (Project), No. 2130, in a manner that is in compliance with the Project's license conditions and meets the electric demands of its customers. The Project contains a number of components, including the Strawberry Development. The Strawberry Development includes the both Pinecrest Lake and Strawberry Dam, which is the structure that impounds the Pinecrest Lake reservoir. The Pinecrest Lake reservoir contains approximately 300 acres of water surface at an elevation of 5,620 feet above sea level and has approximately 3.8 miles of shoreline.

The STF is responsible for permitting private uses within the FERC boundary. These uses include permitting the commercial marina/resort located in the southern part of the reservoir and the docks and walkways used by residential cabin permittees. All the residential cabins are located outside of the FERC boundary, but their walkways and docks cross the FERC boundary to provide access to Pinecrest Lake. Permits associated with docks and walkways are included in this SMP, although the permits are administered by the STF. As described below in Section 4.4, Other Requirements and Conditions, the enforcement of the conditions of this SMP will entail shared responsibility among PG&E, the STF, and Tuolumne County.

One of the objectives of this SMP is to maintain an appropriate balance between the prudent property management requirements of the FERC license and the public's recreation interests. This SMP will assist PG&E and the STF in balancing license requirements and public recreation needs with environmental, biological, and cultural resource protection. A significant requirement of the Project license is that the public be allowed free access, to a reasonable extent, to Project waters and adjacent Project lands. Ensuring access to the waters and adjacent shoreline of Pinecrest Lake was one of the driving factors that led to the license condition that required the development of an SMP. Most of Pinecrest Lake's shoreline is open to the public for swimming, fishing, and general recreation pursuant to applicable county, state, and federal laws. Due to the steep topography around most of the reservoir and the lack of roaded access, level shoreline areas that are accessible by vehicle for recreation are limited to the southern part of the lake. The southern area is where most recreation occurs and where facilities such as the boat ramp, swimming area, beaches, and marina are located.

3.0 DEVELOPMENT OF THE SHORELINE MANAGEMENT PLAN

3.1 Background

During the re-licensing process that began in 1999, PG&E (and TriDam Project) utilized a collaborative group, the Stanislaus Planning Action Team (SPLAT) to design study plans, review results of study plans and prepare consensus resource measures. The STF was a participant in the SPLAT collaborative and adopted the SPLAT resource measures as the Forest Service 4(e) conditions. Because the Forest Service has mandatory licensing authority through the Federal Power Act, 4(e) conditions become part of the FERC license. Forest Service 4(e) condition No 29—Recreation Facilities and Administration, required the Licensee to prepare a Shoreline Management Plan.

The following list highlights some of the issues and conditions related to recreation use patterns along the shoreline at Pinecrest Lake that are described in the Recreation Resources Section of Exhibit E of the Final License Application that led to the requirement of developing an SMP:

- *The STF must manage conflicting uses as space for individual activities becomes limited. Examples of this are dogs off of leashes, swimmers in the mooring areas, and fishing near swimmers, noise from the campers affecting the enjoyment of recreation residence owners and vice versa (PG&E, 2002 - Page E7-36).*
- *Many user conflicts were identified by those interviewed as part of the recreation studies. Specifically the conflicts identified were between: swimmers and anglers, recreationists and dogs not on leashes, sailboat users and anglers, sailboat users and swimmers, swimmers and motorized boat users (PG&E, 2002 - Page E7-43).*
- *The high number of conflicting uses identified by the visitors indicates that management changes may be desirable along the shoreline. Many of the conflicts appear to be related to the area adjacent to the designated swimming area where sailboats and other non-motorized watercraft are moored. It may be advisable to eliminate overnight boat mooring or, alternatively, designate a portion of this area for boat mooring only. By eliminating or at least concentrating boat mooring in one area of the shore, there would be more beach available to accommodate a variety of activities and reduce user conflicts (PG&E, 2002 - Page E7-48).*

3.2 Outreach Activities Associated with the Shoreline Management Plan

After the issuance of the Final Environmental Impact Statement and FERC license on April 24, 2009, public involvement related to relicensing activities was complete. However, because PG&E and the STF realized that the Pinecrest Lake SMP would be of interest to a wide range of Project users, input was solicited from a variety of sources to help shape the SMP. These sources included key members of the community; representatives of community organizations; the general public and focused stakeholders who had a variety of interests, perspectives, and observations to share. The development of the SMP included the following outreach events:

- A key community and organizations leaders meeting (July 7, 2010) was held to identify and discuss issues and concerns related to an SMP.
- A public open house (August 14, 2010) was held to provide a brief overview of the SMP process; share the issues, comments, and observations that were made by community and organizations leaders during the July 7, 2010 meeting; and obtain additional information related to SMP-related issues and observations from attendees.
- Two stakeholders meetings (June 10, 2011 and December 8, 2011) were held to obtain more focused input and feedback from people representing a variety of user group types such as sail boat sailors, human-powered water craft users, residential cabin permittees (permittees), residents of the general project area and commercial operators (representatives from the Pinecrest Lake Resort and the Dodge Ridge Corporation).
- The Draft SMP was placed on a Pinecrest Lake Shoreline Management Plan PG&E website (www.PinecrestLakeUpdate.com) for review and comments. The STF website

(www.fs.usda.gov/stanislaus) also contained a link to the Pinecrest Lake Shoreline Management Plan website. The website included the following:

- The Draft SMP.
- A carrying capacity review document that reviewed carrying capacity literature and was used to help evaluate the carrying capacity at Pinecrest Lake (PG&E, 2012).
- Photographs of Pinecrest Lake taken during the summer of 2010 that illustrate the condition of the shoreline at that time as well as unregulated moored watercraft.

3.3 Vision Statement

With the assistance of attendees at the stakeholder meetings a vision statement was developed for the SMP. The vision statement provided guidance in the development of the SMP. The vision statement reads as follows:

The Shoreline Management Plan for Pinecrest Lake assists in protecting the recreational and aesthetic qualities of this beautiful small body of water and its shoreline that make it such an important public resource. Implementation of the Shoreline Management Plan insures that a wide range of current and future Stanislaus National Forest visitors and users will have safe and enjoyable recreation experiences that are appropriate with the reservoir's peaceful setting, uniqueness and rich history. Management objectives for the SMP include the following.

- *Recognize that the limited size of the reservoir defines appropriate uses.*
- *Focus on small non-motorized/motorized boating opportunities.*
- *Maintain a safe experience for users, including but not limited to fishing, swimming, boating, hiking, camping, and picnicking. Partner with Tuolumne County to achieve these objectives.*
- *Maximize public recreational benefits of the reservoir.*
- *Maintain visual quality – protect existing aesthetics including viewsheds and noise levels.*
- *Maintain accessibility.*
- *Public stewardship provided by local residents and seasonal residents is acknowledged and promoted.*

4.0 THE SHORELINE MANAGEMENT PROGRAM

For this SMP, the management of the shoreline of Pinecrest Lake falls under either the guidelines developed for “shoreline use areas” or for “general shoreline uses.” Most of the recreation shoreline activity at Pinecrest Lake occurs at its southern end. The southern end of the reservoir is readily accessible to the public, the terrain is fairly level, and most of the recreation infrastructure is located here. This relatively small area (approximately 3,400 lineal feet) follows the arc of the lake between the fishing platform and an area several hundred feet north of the marina. This area is the location of the three shoreline use areas. The rest of the lake

(approximately 3.2 miles or 83 percent of the lake) receives substantially less recreation use and falls under the general shoreline use guidelines.

4.1 Shoreline Use Areas

4.1.1 Background

The shoreline use areas developed for this SMP meet FERC license requirements and are consistent with the Forest Plan. The STF Forest Plan provides management direction for the STF, including the shoreline of Pinecrest Lake. The following summarize the portions of the FERC license and Forest Plan that were consulted in devising the shoreline use zones.

FERC License Requirements

License Article 401 (a) and Forest Service 4(e) Condition No. 29, Recreation Facilities and Administration, required the development of an SMP for Pinecrest Lake as part of the FERC license. Condition No. 29 required PG&E to prepare several recreation-oriented plans, among them an SMP. The requirement for the SMP states:

The Shoreline Management Plan shall include the management of the reservoir shoreline. This plan will address the privately owned boat docks and mooring balls, and include zoning of certain sections of the shoreline for swimming, fishing and shoreline boat access.

Condition 29 also required PG&E to develop a Recreation Implementation Plan (PG&E, 2010). This plan included several conceptual design plans for recreation development within the FERC Project boundary, some of which would be located along the shoreline of the Pinecrest Lake reservoir. The conceptual design plans identified various types of recreation use areas located along the reservoir shoreline between the boat ramp and the American with Disabilities Act (ADA) accessible fishing platform. These areas include two hand launches, a fishing zone, and three beach areas. These types of recreation uses are reflected in the shoreline use areas developed for this SMP.

Pinecrest Basin Management Direction

As mentioned previously, Pinecrest Lake is located within the STF. The Pinecrest Basin Management Direction is an amendment to the Forest Plan that provides direction on how land and natural resources within the Pinecrest Basin are to be managed. Because the shoreline and most of the lake bed of Pinecrest Lake reservoir lie within the STF, this SMP must be consistent with the Forest Plan.

The Forest Plan establishes multiple management areas. Pinecrest Lake is contained within the Pinecrest Basin Management Area, a 7,060-acre area that includes the Pinecrest Recreation Area and the Dodge Ridge Ski Area. The Pinecrest Recreation Area includes Pinecrest Lake, an extensive recreation complex of campgrounds, a picnic/day-use area, a commercial center, a resort, a marina, recreation residences and organization camps.

A Forest Plan identifies desired future conditions for each management area within a Forest. The desired future conditions identify how the management area should function in the future based upon issues, concerns, and opportunities that were discussed and developed with public input during the Forest Plan planning process. A number of the desired future conditions for the Pinecrest Basin Management Area directly apply to the development of the Pinecrest SMP;

therefore, this SMP must be consistent with them. Table 1 identifies the desired future conditions that are relevant to this SMP.

Table 1. Desired Future Conditions for the Pinecrest Basin Management Area Directly Relevant to the Shoreline Management Plan	
Practices	Desired Future Condition^a
Developed Recreation Site Management – Public Sector	<ol style="list-style-type: none"> 1. Personal boat mooring is available that does not interfere with day users and people fishing. 2. The swimming area is appropriately sized and managed for swimming safety. The beach areas have plenty of sand covering them. 3. Boat storage does not interfere with day users. Compliance with rules and regulations is achieved.
Facility Operation and Maintenance	<ol style="list-style-type: none"> 4. Launching facilities are safe and are accessible to all users. Hand launch areas are provided.
<p>Note: The numbers associated with the Desired Conditions above are not the same as those contained in the Forest Plan (Forest Service 2010).</p>	

The Pinecrest Basin Management Area comprises six management zones that represent different uses and associated management direction: Zone 1 Day Use, Zone 2 Commercial Use, Zone 3 Recreation Residence/Summer Home Tract, Zone 4 Public Camping, Zone 5 Open Space/Ecological, and Zone 6 Administration/Utilities Infrastructure. The entire shoreline of Pinecrest Lake between the Pinecrest National Recreation Trail and the waters of the reservoir are contained within Zone 1, the Day Use management zone. Lying just beyond the Day Use management zone (but outside of the FERC Project boundary) are areas of Recreation Residence/Summer Home Tract, Open Space/Ecological, and Administration/Utilities management zones.

The Forest Plan provides standards and guidelines for how various resources within each management zone are to be managed. Because the shoreline of Pinecrest Lake is within Zone 1, the Day Use management zone, the Forest Plan’s standards and guidelines for this management zone are also applicable to this Pinecrest SMP, and must be consistent with them. Table 2 lists the standards and guidelines included in the Forest Plan for the Day Use management zone that are relevant to this SMP.

Table 2. Day-Use Management Area Standards and Guidelines Directly Relevant to the Shoreline Management Plan	
Practices	Standards and Guidelines
Developed Recreation Site Management – Public Sector	<ol style="list-style-type: none"> 1. Mooring tie-downs are confined to designated areas and are generally limited to sailboats. 2. Overnight shore mooring is permitted in specific locations only. 3. From May 15 to September 15, dogs are not allowed in the Day Use management zone between Pinecrest Avenue/Pinecrest Lake Road and the lake, and the Marina and the fishing platform.
<p>Note: The numbers associated with the Standards and Guidelines above are not same as those contained in the Forest Plan (Forest Service 2010).</p>	

4.1.2 Use Area Descriptions, Permitted Uses and Activities, and Activities and Objects Not Allowed

The Project license requires that the SMP include “zoning of certain sections of the shoreline for swimming, fishing, and shoreline boat access.” The purpose of this requirement is to provide shoreline areas where these three activities can occur without intrusion or interruption by other types of activities. Because the Project’s shoreline is located within the STF and because the STF Forest Plan already manages land around Pinecrest Lake, the SMP reflects the intent of the Project license and uses terms that are consistent with the Forest Plan. Instead of “zones,” the SMP uses the term use area and is consistent with the Forest Plan directives for the Pinecrest Basin Management Area.

The three use areas are swimming, fishing, and shoreline boat access. Each is described below. Uses that are encouraged are described as well as uses that are prohibited (which if allowed could be detrimental to the encouraged uses). Exhibit 1 depicts the locations of the three use areas.

Swimming Use Area

The swimming use area is approximately 1,000 feet in length and includes Beaches 1, 2, and 3; areas between these beaches; and the waters between the beach and the floating markers delineating the boundary of the swimming area. It coincides with the swimming area that has been in place at Pinecrest Lake for many years. The primary intent of this area is to provide the public with a place at Pinecrest Lake for swimming and water play without the presence of boats. In addition to swimming and water play, activities such as sunbathing and picnicking occur on the adjacent shoreline and are encouraged. Maintaining the current dimensions of the marked swimming area helps satisfy Desired Future Condition 2 as identified in the Forest Plan (see Table 1).

Activities and objects that are not allowed within the Swimming Use Area include the following:

- Any watercraft other than inflatable - it should be noted that Tuolumne County has the ability to place limitations on the size and type of inflatable watercraft or toys if certain types of watercraft or toys become safety concerns (some inflatable watercraft that include slides and “trampoline”-like components may not be appropriate).

- Motorized boats of any size.
- Landing and beaching watercraft other than inflatable watercraft or toys.
- Fishing (from either the shoreline or waters of the reservoir).
- Leaving personal items overnight on the shoreline or in the water.
- Glass bottles and containers.

Fishing Use Area

Although fishing can occur along much of the shoreline at Pinecrest Lake, fishing is especially encouraged in this area. The fishing use area is centered on the ADA-accessible fishing platform. This area was developed for ADA fishing opportunities (although the facility is open for all to use). Fishing at the semi-circular platform and nearby areas is encouraged. To provide clear access for fishing, anchoring boats within 75 feet of the fishing platform is not allowed.

Shoreline Boating Access Use Area

The intent of this use area is to provide additional ways for small sailboats and/or hand-launched watercraft to access and use the waters of Pinecrest Lake. The location for this use area was selected based on historic use, favorable wind patterns for sailing, and access to parking and roads that will facilitate transporting boats between vehicles and the reservoir. A courtesy dock between the swimming area and the fishing platform will be provided to assist the public in launching small sailboats and human-powered watercraft into Pinecrest Lake. The courtesy dock will also provide short-term moorage for boaters needing to temporarily tie their boats up while accessing the shoreline or nearby facilities such as restrooms, concessions, parked cars.

Activities and objects that are not allowed within the Shoreline Boating Access Use Area include the following:

- The storage of watercraft overnight on the courtesy dock or shoreline.
- Tying up to trees, signs, or other objects while temporarily leaving watercraft on the shoreline.
- The use of any mooring buoy by watercraft other than the permitted watercraft.
- Mooring motorized watercraft at the buoys or anchoring on the shoreline adjacent to the buoys unless the motorized watercraft is used to assist in a scheduled group event for which a temporary use permit from the STF was issued.
- Mooring more than one watercraft to each buoy.

Mooring Buoy Program

As discussed in the Boat Carrying Capacity Review (Attachment 1), an initial 20 mooring buoys for sailboats and human-powered watercraft under 18 feet in length are proposed within the Shoreline Access Use Area during the June to September recreation season. This area is the only place at Pinecrest Lake where mooring buoys will be allowed. The intent of allowing mooring buoys within this area is to provide a concentrated area where a reasonable, but limited, number of recreationists will have the opportunity to moor their watercraft overnight at Pinecrest Lake

during the recreation season. This area has historically been used for sailing and has wind conditions that support sailing. The mooring buoys will be concentrated in an area between the swimming area and the fishing platform (see Exhibit 1).

The general public will have an opportunity to take part in an annual drawing for the right to apply to the STF for a special use permit. Winners will be allowed to place and use buoys within this area during a recreation season (which may vary by year depending upon reservoir conditions, but will generally be between June and the end of September). The annual drawing will occur in January and will be conducted by the STF.

The winning entrants will be required to 1) provide their own anchors and buoys that meet State of California boating law standards); 2) provide the STF with the contact information, boat registration number, etc.; 3) mark their buoys with identification tags provided by the STF; 4) place their anchors and buoys within the approved part of the use area and adjust them during the summer (if necessary) as lake levels change; 5) remove the buoys at an agreed-upon time with the STF after Labor Day; and 6) obtain liability insurance adding the STF, PG&E, and Tuolumne County as additionally insured. The fee to winning entrants for the right to place buoys and anchors within the Shoreline Access Use Area will be determined by the Forest Service guidelines for permitting fees prior to each summer season.

Comments from interested parties related to the development of the SMP have stated many times that the boating community is self-regulating. Therefore, the specific locations within the use area where the winning entrants may place their buoys will be left to the entrants, as will adjusting the locations of the buoys during the recreation season as reservoir elevations change.

The STF will regulate the mooring buoy program. STF law enforcement officers, in conjunction with Tuolumne County enforcement officers, will ensure that buoys meet State of California boating standards, issue citations for infractions, and impound watercraft when appropriate.

Providing a location for sailboats and human-powered watercraft to use the waters of Pinecrest Lake helps satisfy Forest Plan Future Desired Conditions 1 and 4 (see Table 1) and Standard and Guideline 2 (see Table 2). It also concentrates mooring buoys in one area of the reservoir, which will allow more of the surface area of the reservoir to be usable for recreation.

The Mooring Buoy Program is considered an “adaptive program” in that it will be monitored and adjusted by the STF, PG&E, and Tuolumne County if situations at Pinecrest Lake change. If, for instance, uses shift and the carrying capacity of Pinecrest Lake is no longer exceeded, it may be possible to add additional mooring buoys for more boats. On the other hand, if it becomes clear that the estimated carrying-capacity range of Pinecrest Lake is being regularly exceeded, it may be necessary to reduce the number of watercraft allowed to moor in the reservoir or to increase carrying capacity. Increasing the carrying capacity of the reservoir by limiting the types/sizes of boats, the type and/or size of motors, or by further reducing speeds might be appropriate, but would need to be implemented through an ordinance passed by the Tuolumne County Board of Supervisors.

PG&E and the STF realize that people who have previously moored their watercraft to unauthorized mooring buoys/floats and do not win the opportunity to place and use a buoy in the annual drawing will need to make adjustments in terms of how they access the waters of Pinecrest Lake. There are several options available to them. These include short-term or seasonal

rental of slips at the commercial marina located at Pinecrest Lake, trailering their watercraft from their residences to the public boat ramp at Pinecrest Lake, trailering their watercraft from boat storage areas near Pinecrest Lake to the public boat ramp, and/or taking advantage of other lakes and reservoirs in the vicinity to recreate in their watercraft. People with smaller watercraft can hand-launch their boats at numerous places at the south end of Pinecrest Lake, including the hand-launch area of the Shoreline Use Area (see Exhibit 1).

The Mooring Buoy Program will be implemented the season following the completion of the traffic, circulation, and parking (TCP) improvements. The first annual drawing for the right to apply to the STF to obtain a special use permit for mooring buoys will occur during the first January following completion of the TCP improvements. It is anticipated that the TCP improvements will be completed three to four years after the SMP is approved by FERC. While the TCP improvements are being implemented, PG&E and the STF will focus on educating the recreating public about the Mooring Buoy Program and changes that will be associated with it. It is understood that the public will need to adapt their routines and activities once the Mooring Buoy Program has been implemented. TCP improvements will help ease the transition and will assist many recreation users in having an enjoyable recreation experience at Pinecrest Lake.

4.2 General Shoreline Permitted Uses and Guidelines

This section of the SMP applies to shoreline uses for all shoreline areas of Pinecrest Lake, including areas outside of the three use areas and the three use areas.

4.2.1 Additional Shoreline Uses

This section discusses specific guidelines, rules, regulations, and permit requirements for the following:

- Personal property left on the shoreline.
- Docks for residential cabin permittees.
- Buoys.
- Commercial marina log booms.

These rules and regulations are subject to change due to changes in local, state or federal laws, or changes in the policies of PG&E and the STF. Certain uses may also require FERC approval. The STF and PG&E will review requests for new shoreline uses that are currently not under permit with the STF. Private docks that are permitted/consented by the STF or PG&E are the personal property of those permittees. Public uses of those facilities will be governed by the owner/permittee and existing permit conditions may change as PG&E, STF, and Tuolumne County policies change. Buoys (mooring and racing) that are permitted/consented by the STF, PG&E, and/or Tuolumne County are also the personal property of the owner/permittee.

4.2.2 Personal Property Left on the Shoreline

Personal property other than permitted/consented docks includes small watercraft, lawn furniture, shade structures, cooking equipment, play equipment, etc. These items are allowed on the shoreline of Pinecrest Lake during daylight hours unless unattended to by the item's owners. Owners of small watercraft and other types of personal property are responsible for using the personal property in a safe manner and for ensuring that the personal property does not pose a threat or nuisance to the public.

Because personal property can physically block the general public's access to the shoreline and waters of Pinecrest Lake, it may not be left on the shoreline overnight or unattended during the day. Personal property that is left overnight or left unattended can "insinuate" that the shoreline area where it was left is private property. This may prevent the general public from using the area. In the past, personal property has been left on the shoreline (particularly at the swimming beach) overnight to "save" the location for people returning the next day. This is not allowed. Personal property (including watercraft of any kind) must be removed from the shoreline at the end of its use. Personal property that is left longer than allowed is subject to removal and impoundment by the STF. The STF has the right and option of removing and impounding personal property at the owner's sole cost and expense. Personal property that is impounded by the STF will be stored at STF facilities. Property that is not retrieved by the owner within thirty (30) days is subject to disposal by the STF at the owner's sole cost and expense.

The only exceptions to the requirements described above pertain to residential cabin permittees who have no road access or docks. Because these permittees can only access their cabins by boat and because they have no docks to tie up to, they are allowed to land and leave two boats overnight on the shoreline near their cabins while using their cabins.

4.2.3 Docks for Permittees

Some residential cabin permittees who have permits for lakeside cabins from the STF but do not have road access to their cabins have one dock or a shared dock. The purpose of the docks is to allow the permittees to be able to access their cabins via the waters of Pinecrest Lake. Permittees with a valid and up-to-date STF dock permit may use their docks as they wish. Any docks constructed or rebuilt after the approval of this SMP shall be required to meet the standards described below.

- Flotation material used in the construction or selection of a dock shall have a rigid outer shell that will not deteriorate due to natural causes or be easily penetrable. Styrofoam must be fully encased by an outer shell and the entire unit maintained to ensure that the foam is not exposed.
- Pre-cast blocks containing a minimum of 8 cubic feet of concrete or angular non-corrodible anchors approximating the same amount of submerged weight will be generally considered acceptable forms of anchorage for docks. Corrodible barrels and drums are not permitted as dock anchors.
- Anchoring a dock to rocks or trees requires the permission of the STF prior to anchoring. The STF will review existing situations where anchoring a dock to rocks or trees has occurred and will re-evaluate these situations on a case-by-case basis.
- Non-compatible docks that require upgrading, repair, or removal shall be renovated within a time frame that is consistent with their condition. Major repairs, which include the use of chemicals, paint, etc., must always be done on dry ground above the water line. Docks not repaired within the time frame prescribed by the STF for repair or removal will be removed at the expense of the dock owner.
- An identity tag will be issued for permitted docks. Any installation not displaying such tag in a conspicuous location, clearly visible to boat patrols, will be in trespass.

- Upgrades to structures such as paths, stairs, and gangplanks that provide permittees access to docks and mooring buoys must meet Tuolumne County Building and Safety Division of the Community Development Department standards, and a building permit must be obtained and filed with the STF.

The STF and PG&E reserve the right to select the appropriate shoreline location for docks.

Permittees must retrieve any dock or associated facilities that break loose from their anchorage within twenty-four (24) hours of notification from the STF or PG&E, provided that notification will not be required if circumstances exist which pose a health or safety risk to the public or the water quality of Pinecrest Lake, or a danger to other property on the lake. Should the permittee's facilities not be retrieved within the allotted time period, the STF and PG&E will have the right and option of retrieving and removing the facilities at permittee's sole cost and expense. The STF will notify permittee in writing as to the location of the removed facilities (which will be stored near Pinecrest Lake) and the permittee will have thirty (30) days from the date of the written notice within which to retrieve the facilities, after which the STF may destroy or otherwise dispose of the facilities. Should the permittee's facilities cause any damage whatsoever to PG&E's hydroelectric facility and/or associated operations, the permittee assumes sole financial liability for all such damages and repairs.

4.2.4 Buoys

As described under the Shoreline Access Use Area section above, the only mooring buoys allowed on Pinecrest Lake must be located within the Shoreline Access Use Area. All buoys will meet State of California boating law standards.

Groups that obtain a special use permit from the STF may, with approval of the Tuolumne County Sheriff's Office, be eligible to place seasonal racing buoys at Pinecrest Lake for activities such as sailboat racing. The number, type, and locations of racing buoys will be permitted by the Tuolumne County Sheriff's Office. Racing buoys are owned and maintained by the groups that use them. The groups that own and use the racing buoys will need to obtain insurance absolving the STF, PG&E, and Tuolumne County from liability associated with the racing buoys. The organized group is responsible for the maintenance and removal of the buoys.

All buoy owners must retrieve buoys that break loose from their anchorage within twenty-four (24) hours of notification from the STF or PG&E, provided that notification will not be required if circumstances exist which pose a health or safety risk to the public or the water quality of Pinecrest Lake, or are a danger to other property on the lake. Should the permittee's buoy not be retrieved within the allotted time period, the STF and PG&E will have the right and option of retrieving and removing the buoy(s) at the permittee's sole cost and expense. The STF will notify permittee in writing as to the location of the removed buoy(s), which will be stored near Pinecrest Lake. The permittee will have thirty (30) days from the date of the written notice within which to retrieve the buoy(s), after which the STF may destroy or otherwise dispose of the buoy(s). Should the permittee's buoy cause any damage whatsoever to PG&E's hydroelectric facility and/or associated operations, the permittee assumes sole financial liability for all such damages and repairs.

4.2.5 Commercial Marina Log Booms

Log booms are only permitted by the STF for commercial marinas. Log booms associated with commercial marinas are permitted provided they are well maintained, kept within the area designated for the marina, and appropriately marked. Log booms will be located so as not to unreasonably interfere with or obstruct navigation. The permittee should also consider placing lighted markers on the log boom for nighttime safety. Logs that break loose shall be retrieved by the permittee within twenty-four (24) hours of notification from the STF or PG&E. In the event the logs are not retrieved within the allotted time period, the STF and/or the PG&E will have the right and option of retrieving, removing, and/or destroying them at permittees' sole expense. Should permittees facilities cause any damage whatsoever to PG&E's Strawberry Development or its associated operations, the permittee assumes sole financial liability for all such damages and repairs.

4.3 General Shoreline Uses Not Allowed

In addition to uses specifically prohibited in Section 4.1.2 for the three use areas, several other types of uses along the shoreline of the Pinecrest Lake are prohibited to ensure the public's ability to enjoy the shoreline of Pinecrest Lake. The following sections list additional uses that are not allowed along the Pinecrest Lake shoreline.

4.3.1 Camping on the Shoreline

Camping on the shoreline of Pinecrest Lake is prohibited, as is boat camping or other forms of camping that would use the reservoir or its shoreline.

4.3.2 Overnight Use of Watercraft

The use of patio/party boats, motorboats, cabin cruisers, and sailboats is acceptable on a day-use basis only. These types of watercraft (or any others) may not be used for overnight lodging purposes.

4.3.2 Fires, Barbeques (outside of organized picnic areas), and Burning

The use of open fires and barbeques is prohibited outside of organized day use/picnic areas where picnic tables are provided. In addition, the burning of any materials within the FERC boundary is prohibited without prior permission from the STF and PG&E. Fires contained within barbeques and/or designated fire rings in permitted cabin lot boundaries are not prohibited.

4.3.3 Non-Commercial Marina Log Booms

Log booms are only allowed for commercial marinas and are not allowed for other groups or individual residential cabin permittees.

4.3.4 Motorized Vehicles on Shoreline

The use of motorized wheeled vehicles is prohibited between the water line of Pinecrest Lake and the shoreline, except in those areas previously authorized by the STF or PG&E.

4.3.5 Jet Skis

The use of jet skis on the waters of the Pinecrest Lake reservoir is prohibited by Tuolumne County.

4.4 Other Requirements and Conditions

4.4.1 Compliance with the Law

Any permitted/consented use, activity, or other use of the shoreline or waters of Pinecrest Lake must be in compliance with all applicable local, state, and federal regulations, policies, and mandates. Anyone discovered in violation of any statute may be subject to prosecution commensurate with the law. The STF, PG&E, Tuolumne County, and applicable agencies will prosecute anyone knowingly contributing to the degradation of water quality at the Pinecrest Lake.

4.4.2 Boating Safety and Rules

Navigable watercraft must comply with all rules and regulations applicable to boating safety. Boaters are expected to comply with all speed limits at Pinecrest Lake, and it is the responsibility of boaters to know the speed limits. The Tuolumne County Sheriff's Office oversees boating safety and watercraft use on all waters of Tuolumne County. Tuolumne County cooperates with the California Department of Boating and Waterways, the agency responsible for administering boater registration and policies. To assist in boating safety, the Licensee and the STF have worked with the Tuolumne County Sheriff's Office in an effort to help encourage boating safety at the Pinecrest Lake reservoir.

4.4.3 Compliance with the Shoreline Management Plan

Compliance with this SMP will be enforced through various entities. The STF is responsible for enforcing most regulations associated with this SMP because the majority of the Project is located on STF-managed lands. The STF is also responsible for the permitting and regulation of docks owned by adjacent residential cabin permittees without road access and mooring and racing buoys.

Law enforcement officers of the Tuolumne County Sheriff's Office and the STF have the primary responsibility for enforcing important components of this SMP. Enforcement duties related to this SMP include the following:

- Impounding watercraft and other personal property left on the shoreline overnight after the watercraft receives a twenty-four (24) hour notice.
- Ticketing boats illegally moored to mooring buoys.
- Enforcing the non-permitted uses identified in Section 4.3, Additional Shoreline Uses Not Allowed.
- Assessing the condition and compliance of permittee docks.
- Enforcing ordinances passed by Tuolumne County for Pinecrest Lake or other reservoirs in the county, including noise ordinances, bans on jet skis at Pinecrest Lake, speed limits, etc.

4.4.4 Trash Management

To prevent degradation of the shoreline, users of the Pinecrest Lake shoreline are expected to remove all containers, equipment, or other materials that they bring with them to the shoreline. The STF provides refuse containers for daily trash at some developed day-use sites, and requires pack-it-in/pack-it-out management at others, where bearproof containers cannot be

accommodated or where the container would attract trash from non-recreation users. At those facilities with pack-it-in/pack-it-out management, STF staff will patrol the area for litter during their regular maintenance schedule. Commercial parties operating facilities along the shoreline will keep their areas clean and free of trash and litter. Residential cabin permittees will keep their docks and walkways/access ways free of trash.

4.4.5 Lake Level

The primary use of Pinecrest Lake is for the storage of water for hydroelectric power and domestic use. Lake levels will vary depending on precipitation and PG&E's operational needs, consistent with applicable FERC requirements.

5.0 SPECIAL USE PERMIT PROCESS

The process to be followed by a potential permittee when applying for a special use permit on STF lands within the Project boundary is as follows:

1. The potential permittee will discuss the proposed use with STF public service staff to determine if the use can be accommodated under the SMP. The STF will consult with PG&E as needed. If appropriate, the STF or the PG&E may require that conditions be placed in the use to make it compatible with the SMP, or to comply with License Article 408: Use and Occupancy. The STF may require the potential permittee to consult with Tuolumne County on some matters.
2. The potential permittee will submit an application to the STF with any necessary details identified during the consultation under item 1 above. The STF will provide a copy to PG&E.
3. PG&E will provide comments back to the STF.
4. The STF will decide whether it is appropriate to authorize the permit. If so, the STF will advise the Licensee and PG&E will issue a consent agreement. If the use requires advance notification of the FERC under License Article 408, PG&E will not issue the consent until the FERC notification process is complete.
5. Once the STF has received the consent agreement from PG&E, the STF will issue a permit including any appropriate conditions.

For more information contact either PG&E or the STF by calling the following (note that telephone numbers can change over time and that the numbers below may have changed since the time this SMP was adopted).

5.1 Contact Information for Pacific Gas and Electric

Call the PG&E Recreation Hotline for Pinecrest Lake (916) 386-5164.

5.2 Contact Information for Stanislaus National Forest, Summit Ranger District, District Ranger

Call (209) 965 3434, extension 5317.

6.0 REFERENCES

PG&E, 2002. *FERC No. 2130: Spring-Gap Stanislaus Hydroelectric Project - Final License Application: Recreation Resources*. Pacific Gas and Electric Company, San Francisco, CA. December, 2002.

PG&E, 2010. *FERC No. 2130: Spring-Gap Stanislaus Hydroelectric Project Recreation Implementation Plan, Pinecrest Recreation Area*. Pacific Gas and Electric Company, San Francisco, CA. April 21, 2010.

PG&E, 2012. *Recreational Boating Capacity at Lakes and Reservoirs Literature Review*. Pacific Gas and Electric Company, San Francisco, CA, March 26, 2012.

U.S. Forest Service (Forest Service). 2010. *Stanislaus National Forest: Forest Plan Direction, Alpine, Calaveras, Mariposa and Tuolumne Counties, California*. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, Stanislaus National Forest, Sonora, CA. April 2010.

Attachment 1

Boating Carrying Capacity Review

April 3, 2012

1. INTRODUCTION

BACKGROUND

The purpose of this review is to provide background data to help determine an appropriate number of boat moorings at Pinecrest Lake. This issue arose during the development of the Pinecrest Lake Shoreline Management Plan (SMP). To determine how many mooring buoys would be appropriate at Pinecrest Lake, it was necessary to identify the potential carrying capacity of the reservoir. This review was developed to help identify reasonable carrying-capacity ranges for Pinecrest Lake.

For decades boaters have been able to moor their boats at Pinecrest Lake without regulation of any kind. Some boaters have moored their boats to mooring buoys/floats for short periods of time while visiting the lake, while others have taken advantage of the free and unregulated mooring and have left their boats in the lake all season. Currently there are no directives regarding where boats can be moored to buoys (other than within 200 feet of the dam), the size or type of vessel that can be moored, periods of time when they can be moored, or the type of mooring buoy/float or anchor (which range from cement blocks, to metal anchors, to cement-filled plastic antifreeze containers).

Pacific Gas and Electric (PG&E), the Stanislaus National Forest (STF), the Federal Energy Regulatory Commission (FERC), and other parties have identified unregulated mooring as an issue that needs to be addressed as part of the SMP. During an informal inventory conducted in June 2010, 195 buoys/floats were counted in the 300-acre reservoir, and 152 boats of varying sizes and types were moored to these buoys/floats. Because the increasing demand for water-based recreation in California is expected to continue, the demand for a resource like Pinecrest Lake likely will also increase. The current free and unregulated mooring buoy/float situation at Pinecrest Lake makes the reservoir even more attractive to boaters. In light of this trend, it is logical to conclude that the unregulated environment at Pinecrest Lake will attract more boaters, with a resulting increase in the number of unregulated buoys/floats.

REVIEW OF LITERATURE ON CARRYING CAPACITY

There are a number of studies, technical articles, and presentations available that discuss ways and approaches to determine the carrying capacity for recreational boats on lakes and reservoirs. Section 7, Bibliography, lists the studies, technical articles, and presentations that were examined for this review. One of the more useful documents was a handout prepared as part of a presentation given at the Changing Lakes, Changing Policy Workshop held in Pewaukee, Wisconsin, on February 13, 2010. The handout and presentation were prepared by Paul Dearlove of the Lake Ripley Management District in Wisconsin. As Dearlove noted, carrying capacity can be thought of as a threshold that, if exceeded, would lead to an undesirable set of conditions or problems.

Dearlove and others identified a number of factors that contribute to defining the carrying capacity at lakes and reservoirs. The following factors are of value for determining thresholds at Pinecrest Lake:

- **Lake use characteristics.** It is necessary to understand lake use patterns in terms of how the lake or reservoir is being used, who is using it, the types of boats used on the lake or reservoir, and the number and types of boats present on the water during peak and nonpeak times.
- **Usable lake surface area.** The amount of lake surface that can support boating activities is critical for establishing carrying-capacity thresholds and determining an appropriate mix of boating activities and boat types. This area is often calculated by subtracting a shoreline buffer zone of predetermined width from the total acreage of the lake. Buffer zones include areas along the edge of the lake that are too shallow or close to the shoreline for safe boating and lake areas that contain navigational hazards, such as marinas, piers, swim rafts, floats for public swimming beaches, moored boats, and underwater obstructions.
- **Boating density standards.** Boating density standards are usually represented in surface acres per type of watercraft or activity. Optimum densities depend on users' preferred setting types and site-specific attributes. Boating speed has a major influence on boating density. The faster a boat travels on a waterbody, the more acres per boat are needed to allow for safe maneuverability. Faster boating speed lowers the boating density of a lake or reservoir. The studies that were reviewed for this document report or suggest different densities for different types of vessels and activities. The specific densities mentioned in these studies often differ, but do provide ranges of densities to consider that will assist in establishing carrying-capacity thresholds at Pinecrest Lake and determining appropriate mixes of boating activities and types. The various densities described in the studies are identified in Section 4, Boating Density Standards.
- **Lake use rate.** Not all boats that are moored at a lake use it at the same time. The percentage of boats used at a lake during a certain time is called the "lake use rate." Knowing this rate is important for establishing carrying-capacity thresholds. The lake use rate can vary greatly by season, day of the week, and time of day. For assisting in establishing carrying capacity, lake use rates are usually estimated during times of maximum, or peak, use periods such as summer holiday weekends.

These four factors are used to organize the discussion regarding potential carrying capacity and appropriate number of potential mooring buoys at Pinecrest Lake; they are discussed in more detail below. It should be noted that in addition to the four factors identified above, other factors such as speed limits, water surface use and speed zones, directional use of a lake (for example, where all vessels are required to travel in a clockwise direction during periods of heavy use), and the presence of law enforcement also influence carrying capacity.

2. LAKE USE CHARACTERISTICS

OVERVIEW

Recreational use of lakes and reservoirs can vary widely depending upon a number of characteristics. Larger bodies of water typically offer a wider range of uses than smaller ones and often allow watercraft to travel at greater speeds. Boat speed, boating activities, and the types of

boats found at lakes can vary widely. Lake and shoreline uses that can influence limits on boating speed and the types of boating permitted include the following:

- The presence of ecologically sensitive areas where wildlife could be disturbed by noise and activity related to high-speed boats
- Areas where shoreline could be eroded due to wakes generated by boats
- The presence of residences whose occupants could be disturbed by noise generated by boat motors or boaters
- Other types of uses (i.e., swimming, fishing, marinas) and safety factors (i.e., shallow water, submerged hazards)

People who use lakes for recreation also have different characteristics and expectations that can influence carrying capacity. The type of activities people participate in, as well as the region in which they live and participate in recreation, can have a great deal of influence on recreational experience expectations. For example, people fishing in a remote section of a lake are likely to have different expectations and perceptions of crowding than groups of people socializing on multiple boats in a popular part of a lake. Likewise, recreationists spending several days boating on a large waterbody like Lake Oroville would have different expectations than people recreating for an afternoon on a small mountain lake. These perceptions might also be influenced by region (recreationists in areas with denser populations might accept more crowded conditions, as might people with fewer lakes to choose from), distance to population centers, historical recreational use patterns and other factors.

PINECREST LAKE USE CHARACTERISTICS

The recreation section of Exhibit E (Environmental Report) of the *Final Environmental Impact Statement (FEIS) for the Relicensing of the Spring Gap-Stanislaus Hydroelectric Project* (the “Project”) examined existing recreation characteristics and conditions at Pinecrest Lake (FERC, 2002). FERC reported that reservoir use was highest in the afternoon and peaked on weekends and holidays. The most frequently observed activities were motorized boating, sailboating, and paddle (nonmotorized, nonsailing) boating. The percentage of watercraft types observed were motorized boats (51.9 percent); motorized partyboats (7.2 percent); nonmotorized kayaks, canoes, and rowboats (16.9 percent); sailboats (7.9 percent); and paddleboats (16.1 percent). Some of the recreation data examined by FERC were collected in the early 2000s, and the number of nonmotorized boats, particularly kayaks, is believed to have increased significantly since then. Speed restrictions of 20 miles per hour (mph) on the reservoir do not allow high-speed boating activities, such as waterskiing, to occur. Tuolumne County does not allow personal watercraft (PWC) to operate on the reservoir.

The recreation studies that were conducted for the relicensing effort included fixed-wing flights over Pinecrest Lake on two Saturdays (June 30 and July 28, 2001) at approximately 9:00 a.m. and 1:30 p.m. The June 30 date was chosen to represent a holiday summer weekend (Fourth of July) and July 28 was chosen to represent a nonholiday summer weekend. During the June 30 morning aerial survey, 42 watercraft were counted as being active; 92 watercraft were spotted during the afternoon survey. During the July 28 survey 50 vessels were counted in the morning, and 75 in the afternoon.

During the summers of 2001 through 2007, the Tuolumne County Sheriff’s Department conducted counts of watercraft using Pinecrest Lake and being stored on its waters or along its

shoreline (R. Demartini, 2011). Between 2001 and 2003, only motorized boats were counted. The 2005 to 2007 counts included motorized boats and other types of watercraft (kayaks, canoes, paddleboards, paddleboats, tubes, etc.) being stored at Pinecrest Lake. The counts show a steady general increase in the number of watercraft at Pinecrest Lake. The number of watercraft counted was as follows:

- Motorized Boats Only
 - 2001 = 43
 - 2002 = 126
 - 2003 = 193
 - 2004 = 174
- Motorized and Other Watercraft
 - 2005 = 281
 - 2006 = 302
 - 2007 = 610

Pinecrest Lake has been an important recreation resource for multiple generations of recreationists. One of the most noteworthy, historical, and visible activities at the reservoir has been sailing small sailboats. Various groups of sailors have sailed at Pinecrest Lake for over 50 years and have historically launched their small sailboats from a beach at the southeastern part of the reservoir. In recent years, these sailors have typically set up approximately six mooring buoys near this beach from the last week of June through just before Labor Day (J. Haire, 2012). The sailboats are moored to the buoys for the day and/or overnight. Most of the small sailboats are El Toros (generally 8 feet or less in length) and Lasers (generally less than 14 feet in length).

3. USABLE LAKE SURFACE

OVERVIEW

Evaluating usable lake or reservoir surfaces often considers shoreline buffer zones or buffers near shoreline areas, as well as objects in the water (and safety buffers around them) that would limit or restrict certain types of boating activity. The intent of buffers is to generally identify areas where high-speed boating or certain types of boating would not be appropriate due to safety or environmental factors. Establishing buffers removes these areas from the total amount of usable lake surface. The buffer distances identified in the reviewed literature are provided in the bulleted list below; these examples are generally for larger lakes, and it should also be noted that these buffers are likely not directly applicable to Pinecrest Lake due to the existing speed limits (20 mph) on the lake that would somewhat negate their utility:

- 100 feet from the shoreline at a large lake in Maryland on which a variety of water-based activities occur (Bosley, 2005)
- 200 feet from the shoreline and 400 feet from marinas and swimming beaches at large lakes with power boats traveling at high speeds (Jaakson et al., 1990)
- 200 feet from the shoreline at Lake Ripley, a 418-acre lake in rural Wisconsin (Lake Ripley Management District, 2003)

Other objects within a lake or reservoir, such as docks, buoys, stumps, rocks, aquatic vegetation, swimming platforms, and dams, are also considered (and in some cases assigned a buffer) when

determining usable surface area. The degree to which these objects could reduce usable surface area is determined by the speed and type of boats using the lake, the types of activities that occur, and the size of the lake. Greater distances would be required for objects in reservoirs where higher speed limits are allowed versus reservoirs where there are lower maximum speed limits. Likewise, lakes where high-speed activities such as waterskiing occur would require greater buffers than lakes where slower and less active activities occur.

PINECREST LAKE USABLE LAKE SURFACE FINDINGS AND ASSUMPTIONS

The amount of usable surface area at a lake or reservoir is determined by a number of factors, as described previously. One of the factors that can vary over time at water storage reservoirs such as Pinecrest Lake is the amount of surface area available for recreation. The amount of water stored in reservoirs and surface area often fluctuates during the year and can influence usable lake surface. The elevation of Pinecrest Lake ranges from a maximum of 5,620 feet above sea level at full pool (300 surface acres) down to the Project's winter pool elevation of 5,585 feet above sea level. The reservoir is kept as full as possible during the summer recreation months consistent with operational demands and current license conditions. It typically fluctuates between 5,615 (289 surface acres) and 5,610 (269 surface acres) between Memorial Day and Labor Day.

Full pool at Pinecrest is considered to be elevation 5,620 feet above sea level. At this elevation, Pinecrest Lake has 300 acres of surface area. PG&E attempts to maintain an elevation of 5,618 feet from Memorial Day through the Labor Day weekend (the main recreation season for which carrying capacity is being estimated). At an elevation of 5,618, Pinecrest Lake has a surface area of approximately 295 acres.

The U.S. Forest Service (USFS) conducted a boating and fishing recreation study at Pinecrest Lake in 1964 (USFS, 1964) and stated that the lake had 275 usable acres of surface water when full. The study did not identify what objects (shoreline buffers or other features) were subtracted from the total surface area to determine usable acres. Objects at Pinecrest Lake that could be considered in determining usable surface area include marina facilities (docks and safety log-boom), fire boat dock, permittee docks, dam, intake structure, swimming beach, fishing platform, and unregulated moored boats.

The recreation section of the FEIS (see Exhibit E, page E7-47; FERC, 2002) for the relicensing of the Project assumed that all 300 acres were usable, but provided a caveat that the "estimate may be slightly high considering the high level of swimming activity, docks in several locations and round the reservoir shoreline, shallow water depth (particularly near the marina), and the low level of boating regulation enforcement." Considering the presence of the swimming area, the marina, 39 permittee docks, the public boat-launch ramp, the fireboat dock, the fishing platform, the PG&E intake structure, the dam, and numerous unregulated moored boats and buoys/floats, less than 300 acres of the reservoir surface is usable. The recreation section of Exhibit E did not mention the number of unregulated moored boats at Pinecrest Lake. An informal count on July 7, 2010, found 195 unregulated buoys/floats of varying types in the reservoir, of which 152 had watercraft of varying types and sizes moored to them (M. Greenig, 2010). This number of moored boats would reduce the usable surface area of Pinecrest Lake.

The USFS study and the recreation section estimates contained in Exhibit E of the FEIS (FERC, 2002) did not consider boating speed as a factor that would reduce the amount of usable surface area at Pinecrest Lake. Although the speed limit at Pinecrest Lake is 20 mph, boaters cannot operate their boats at that speed throughout the entire the reservoir. Section 655.2 (Speed Limit

for Vessels in Certain Areas) of the California Harbors and Navigation Code 2012 states that motorized boats may not exceed 5 mph in areas that are within 100 feet of people swimming and 200 feet of beaches frequented by bathers, swimming floats delineating swimming areas, and docks or floats to which boats are moored (California Boating and Waterways Commission, no date). At Pinecrest Lake the 200-foot distance would include the swimming beach, the commercial marina (and breakwater), seasonal residential cabin permittee docks, and boats moored to buoys.

The Tuolumne County ordinance code (Section 8.24.065 [Boating] of Chapter 8.24) contains distance requirements for boating that are similar to State of California requirements. The Tuolumne County ordinance code also states that it is unlawful to operate a boat within 200 feet of a dam. When these factors are considered (and an assumption that boats cannot travel faster than 5 mph when within 100 feet of the shoreline), the amount of usable lake surface at Pinecrest Lake is reduced further.

An estimate of usable lake surface area was developed for a pool elevation of 5,618 feet. A buffer of 200 feet was placed around the swim beach, the marina, permittee docks, and the dam. Unregulated boats moored to buoys were not considered. A buffer of 100 feet was placed around shoreline areas not covered by the 200-foot buffer. With those assumptions in place, the usable lake surface area for boats traveling between between 5 and 20 mph was estimated to be 235 acres.

4. BOATING DENSITY STANDARDS

OVERVIEW

The literature that was reviewed relative to boating density presented a variety of different boating density standards. It can be assumed that the density standards for motorized boats in the list of reviewed literature below would be greater than what would be appropriate for Pinecrest Lake because it is very likely that those lakes do not have a lakewide, 20-mph maximum speed limit like Pinecrest Lake does. Most of the lakes and reservoirs that were examined are larger than Pinecrest Lake's 300 acres. A variety of boating standards were reported in the literature. Among the standards that were reported are the examples below:

- Jaakson et al. (1989)
 - Waterskiing and motorboat cruising: 20 acres per boat
 - Boat fishing: 10 acres per boat
 - Canoeing, kayaking, sailing: 8 acres per boat
 - Note that the lakes examined were between 1,750 and 2,400 acres in size
- Warren and Rea (1989)
 - Motorboats: 9.0 acres per boat
 - Fishing from boat: 1.3 acres per boat
 - Sailboats: 4.3 acres per boat
 - Canoes and kayaks: 1.3 acres per boat
 - Waterskiing boats : 12.0 acres per boat

- Florida Department of Environmental Protection, Division of Recreation and Parks (2005)
 - Limited power (10 horsepower [hp] or less) boating: 5 to 10 acres per boat (recommends a waterbody with a minimum of 200 acres for activities using less than 10 hp)
 - Unlimited power boating: 10 to 20 acres per boat (recommends a waterbody with a minimum of 600 acres for activities using boats with unlimited power)
 - Water skiing: 20 to 50 acres per boat (same as unlimited power boating)
 - Sailing: 20 to 50 acres per boat (recommends a waterbody with a minimum of 200 acres)
 - No power, still water: 5 to 10 acres per boat (recommends a waterbody with a minimum of 50 acres)
- New York State Office of Parks and Recreation (Bosley, 2005)
 - Sailboat: 6 to 8 acres per boat
 - Powerboats: 6 to 8 acres per boat
 - Waterskiing: 15 to 20 acres per boat
 - Fishing anchored: 0.3 to 0.5 acre per boat
 - Rowboats: 1 acre per boat
 - Fishing trolling: 1 acre per boat
 - Canoes and kayaks: 1 acre per boat

ASSUMPTIONS FOR PINECREST LAKE

In the recreation section of Exhibit E of the FEIS (FERC, 2002) for the relicensing of the Project, FERC concluded that approximately 60 percent of the boats at Pinecrest Lake were motorized and 40 percent were nonmotorized. During an SMP stakeholder meeting, most boats on the reservoir were reported to be less than 18 feet in length, which means that most boats using Pinecrest Lake are relatively small boats compared with many larger lakes and reservoirs in northern California. This information was used to develop the proposed boating density standards for Pinecrest Lake. Based upon the small size (300 acres) of Pinecrest Lake, the relatively slow speed limit (20 mph), the fairly small size of most boats, and the low-key types of boating use on the lake (fishing, sightseeing, sailing, paddling, and similar), denser boating standards were determined to be appropriate at Pinecrest Lake compared with other larger, bodies of water.

5. LAKE USE RATE

OVERVIEW

Not all boats that are moored on a waterbody are active at the same time. The lake use rate is the percentage of boats moored at a lake that actively use it at the same time. Two literature sources that were reviewed discussed lake use rate (EDAW, 2004; Bosley, 2005). EDAW, Inc. (2004) conducted recreation studies for the California Department of Water for the FERC relicensing of the Oroville facilities (which include Lake Oroville) in northern California. Although Lake Oroville is much larger than the Pinecrest Lake (15,500 acres vs. 300 acres), it, too, receives peak recreational use over the major summer holidays (Memorial Day, Fourth of July, and Labor Day). During the relicensing studies, FERC estimated that, on average, during all summer weekends in which counts were conducted, 56 percent of all boats on the lake (active, stored, or moored) were active (moving). During the three busiest weekends, 40 percent were active on the reservoir and 60 percent were beached or moored.

The Bosley (2005) study included findings on lake use rates. Bosley reported that another study of a lake in Michigan containing shoreline residences estimated the peak lake use rate was 10 percent of boats moored at existing shoreline developments; however, Bosley suggested 15 percent might be a more realistic percentage for the percentage of boats used by adjacent shoreline residents. Bosley also reported that the study estimated that the peak lake use rate for boats launched from public facilities was 50 percent of the capacity of the public facilities during peak times.

ASSUMPTIONS FOR PINECREST LAKE

Based upon discussions with STF staff and the Pinecrest Lake Resort (PLR), the weeks between early July and mid-August and over the Labor Day weekend are the busiest at Pinecrest Lake. Although use is high throughout the week, it can be even greater on weekends. Peak use at Pinecrest Lake is assumed to occur during these times. The PLR also indicates (based on rental data) that the highest peak use period is during the afternoons of the busiest summer weekends and that, other than those afternoons, they generally have plenty of rental boats that are available. This suggests that maximum peak use periods at Pinecrest Lake are somewhat limited.

To determine the lake use rate at Pinecrest Lake during these peak periods, the percentage of varying types of boaters that use the lake must be estimated. Based in part on the studies discussed by Bosley for reservoirs in North Carolina (that have lakeside residences with docks and receive use by people launching boats from ramps), it can be assumed that the lake use rate of permittees with docks would be lower than lake use rates of boaters launching boats from public facilities or the PLR Marina. Bosley estimated 10 to 15 percent of the boats moored at private docks next to residences would be actively boating on a lake during peak periods. Because many permittees can only access their cabins by water, it is assumed that a greater lake use rate for permittees (20 percent) occurs at Pinecrest Lake during peak use periods than occurs at the lakes and reservoirs in North Carolina that Bosley discussed.

Most of the boaters using Pinecrest Lake during peak periods do so from boats moored at or rented from the PLR Marina, launch their boats from the public boat launch (and park their trailers at trailer parking spaces), launch their human- or wind-powered boats from various shoreline locations, launch from seasonal residential permittee docks, or launch from the many unregulated buoys/floats. Based on the reported lake use rates cited previously, 40 to 50 percent of the boats moored at the marina and 40 to 50 percent of the boats launched from the public boat launch ramp (and whose trailers are parked in the trailer parking areas) are estimated and assumed to be on the water during peak use periods. The boats that are moored to the unauthorized buoys/floats are not considered in this discussion. These estimates were confirmed after reviewing rental data at the PLR for popular summer weekends in 2011 (PLR, 2012).

As noted previously, the recreation study that was conducted for the relicensing effort found that during a weekend in 2001 near the Fourth of July counted 92 vessels active on Pinecrest Lake during an afternoon flyover. A nonsummer weekend afternoon flight in July 28 of 2001 found 75 boats active boats.

6. CARRYING CAPACITY

PREVIOUS CARRYING-CAPACITY ESTIMATES AT PINECREST LAKE

The 1964 USFS document described previously estimated that with a usable lake surface area of 275 acres, the carrying capacity of Pinecrest Lake would be 92 boats (based upon a mixture of motor and sailboats) at a boating density of three boats per acre (USFS, 1964). It went on to state

that based on USFS experience at Pinecrest Lake, when adequate law enforcement had been provided by Tuolumne County, a carrying capacity of up to 200 boats had been considered acceptable and safe. The document did not identify what adequate law enforcement entailed.

The recreation section of the FEIS (see Exhibit E, page E7-47; FERC, 2002) for the relicensing of the Project included a carrying-capacity estimate for the surface of Pinecrest Lake. Based upon an assumed usable lake surface area of 300 acres and a boating mix of 60 percent motorized and 40 percent nonmotorized boats, the carrying capacity for Pinecrest Lake was estimated to be 134 boats. The authors mentioned that the estimate might be slightly high considering the high level of swimming activity, docks in several locations around the reservoir shoreline, shallow water depth in areas, and the low level of boating regulation enforcement. They went on to state that, based upon their observations, it appeared that as of 2000, Pinecrest Lake was generally below this carrying-capacity number.

EXAMINING CARRYING-CAPACITY OPTIONS AT PINECREST LAKE

Two additional options for estimating carrying-capacity ranges were developed for this review and are displayed in Tables 1 and 2. Both options assumed that Pinecrest Lake has 235 acres of usable lake surface (at an elevation of 5,018 feet) for vessels going faster than 5 mph. Both options assumed that there would be no unregulated boats moored on the reservoir and that the same percentage of boating types that have historically used the reservoir would continue to use it. These percentages were based upon percentages identified in the Recreation Resources section of Exhibit E of the *Final License Application for the Spring Gap-Stanislaus Project* (FERC, 2002). The two options used different boating density standards, as explained below.

Option 1

Option 1 assumed boating-density standards that were similar to the standards identified in the literature reviewed and described previously. This option used the “low” end of the spectrum of the various standards (which would allow for higher boating densities resulting in fewer acres per boat) for several reasons, the first being size. With a maximum acreage of 300 acres, Pinecrest Lake is smaller than most reservoirs and lakes to which the literature pertained. As a result, many water-oriented activities that require more space per boat (like waterskiing and high-speed boating) for safety do not occur at Pinecrest Lake, or do so in limited numbers. In addition, the speed restriction of 20 mph at Pinecrest Lake discourages many types of boating activities that involve high speeds that would necessitate more space per boat. These slower speeds justify the assumption that fewer acres per motorized boat at Pinecrest Lake compared to most larger lakes are appropriate.

As seen in Table 1, using the historical percentage of boats types that have used Pinecrest Lake and some of the “denser” boating densities (which allow fewer acres per boat) that were described in the literature, the total carrying capacity would be 76 boats.

Table 1. Option 1: Carrying Capacity of Pinecrest Lake

Type of Boat	Use at Pinecrest Lake (percentage)	Boating Density Used (acre per boat)	Number of Boats That Could Be on Lake by Percentage of Use That Would Meet Boating Density Standards
Motorized boats	52	4.3	39
Motorized party	7	4.3	5
Human-powered	33	1.3	25
Sailboats	8	1.3	7
Total	100		76

Option 2

The only difference in the assumptions made for Option 2 and those made for Option 1 is that Option 2 would change the boating density to allow even greater density for motorized boats and party boats than was allowed in Option 1. Slightly lowering the acres per motorized boat and party boat from 4.3 acres per boat to 3.5 acres per boat would increase the carrying capacity from 76 to 89 boats.

Table 2. Option 2: Carrying Capacity of Pinecrest Lake

Type of Boat	Use at Pinecrest Lake (percentage)	Boating Density Used (acres per boat)	Number of Boats That Could Be on Lake by Percentage of Use That Would Meet Boating Density Standards
Motorized boats	52	3.5	46
Motorized party	8	3.5	7
Human-powered	32	1.3	29
Sailboats	8	1.3	7
Total	100		89

Table 3 compares the carrying-capacity estimates from the four estimates described above. As can be seen in Table 3, carrying-capacity numbers range from a high of 134 to a low of 76. A reasonable range of boats to consider for the carrying capacity of Pinecrest Lake is between approximately 76 and 89 boats.

Table 3. Comparison of Carrying-Capacity Estimates

Carrying-Capacity Versions	Boat Types (percentage)	Assumed Usable Lake Surface (acres)	Carrying Capacity
Option 1	Motorized boats: 52 Motorized party: 7 Human-powered: 33 Sailboats: 8	235	76
Option 2 (denser standards than Option 1)	Same as Option 1	235	90
Recreation Resource Study (from Final License Application)	Motorized: 60 Nonmotorized: 40	300	134
1964 STF Report	Did no categorize	275	89 ¹
Note 1: The 1964 STF Report stated that up to 200 boats were considered acceptable and safe when adequate law enforcement had been provided by Tuolumne County.			

DETERMINING THE NUMBER OF POTENTIAL MOORING BUOYS AT PINECREST LAKE

To determine if mooring buoys would be appropriate at Pinecrest Lake, the carrying capacity of Pinecrest Lake needed to be compared with likely boating use rates to determine if mooring buoys would contribute to exceeding carrying capacity. To make this determination, the following sequence of factors was considered:

1. Identify the number of boats that are currently authorized to moor at Pinecrest Lake (at the PLR and at permittee docks); this estimate excludes the boats moored around the lake at unauthorized mooring buoys.
2. Add the number of trailer spaces near Pinecrest Lake to establish the approximate number of boats that could launch into Pinecrest Lake from the public ramp, and add that number to the total from Step 1 to determine the number of vessels that could potentially use Pinecrest Lake (this does not take into account vessels that could be hand-launched from the shoreline).
3. Estimate the level (percentage) of use of the authorized boats during peak use periods to determine how many of them would be estimated to be using the reservoir during peak use periods; note that this level (percentage) varies by boating type.
4. Multiply Step 3 (level or percentage of use) percentages by Steps 1 and 2 to determine the number of nonmotorized hand-launched boats that could be expected to use Pinecrest Lake during peak periods; note that this number might be less or greater than the carrying capacity.
5. Determine how many nonmotorized (human- and wind-powered) boats would be expected to be on the reservoir during periods of peak use. The highest aerial count made from the recreation study found 92 vessels. The recreation study determined that 40 percent of the boats that use the reservoir are nonmotorized, so it can be reasonable to assume that half (47) of the 92 vessels counted would be nonmotorized. Some number of these nonmotorized boats are moored at either permittee docks, the PLR marina, or launched at the boat ramp and their

trailers parked at one of the trailer parking stalls; the remainder is assumed to be hand-launched from other locations. If half of the human-powered vessels (47) are assumed to be hand-launched, then 24 additional human-powered boats could be assumed to be on the reservoir during peak periods.

6. To determine how many buoys might be appropriate, the number from Step 4 (likely number of vessels at peak periods) is subtracted from the carrying capacity. If the number from Step 4 is greater than the carrying capacity, then there would be no room for buoys.

Using these steps outlined above, the following was calculated.

1. It is estimated that 339 boats are currently authorized to moor at Pinecrest Lake. These vessels are moored at the following areas:
 - PLR = 261 boats (200 permanent seasonal slips and 61 boats temporary slips at elevation 5,612 feet)
 - Seasonal residence permittee docks = 78 (assumes 2 boats per each of the 39 permitted docks)
 - $261 + 78 = 339$
2. There are spaces for approximately 33 boat trailers to park.
3. It is estimated that 40 percent of the boats that are authorized to moor at PLR would be actively boating (not tied up to docks or the shoreline) on the reservoir during peak use periods. Also, 20 percent of the permittee boats are estimated to be actively boating on the reservoir during peak use periods. These percentages are similar to those in the literature that was reviewed. During peak use periods, all 33 boat trailer spaces are estimated to be filled, and most (75 percent) of these boats would be actively boating on the reservoir.
 - PLR boats (261) x 40 percent = 104 boats
 - Permittee boats (78) x 20 percent = 16 boats
 - Boats launched from ramp with trailers parked in parking spaces (33) x 75 percent = 25 boats
 - Hand-launched nonmotorized boats = 24
 - Total = **169 boats could be reasonably expected to be actively using the reservoir during the highest part of peak use periods**

The approximately 170 boats that could reasonably be expected to be actively using Pinecrest Lake during the highest part of the peak use period (afternoons of major summer holiday weekends) would exceed the carrying capacity range of between 76 and 89 boats discussed previously. The carrying-capacity range at Pinecrest Lake likely occurs several times during the summer season. It can be assumed that the carrying-capacity range at Pinecrest Lake will be exceeded more frequently over time as recreational demand for boating continues to increase on a state-wide, regional, and local basis.

POTENTIAL MOORING BUOYS AT PINECREST LAKE

Viewed strictly through the lens of the carrying-capacity range of Pinecrest Lake, removing all of the unauthorized mooring buoys/floats and the watercraft that moor to them would seem to be a logical way to address current and future issues associated with peak use period over capacity issues. However, PG&E and the STF realize that small boats, particularly small sailboats, have been a part of the historic fabric of Pinecrest Lake for decades and are closely integrated into its

history. Input from stakeholders made it very clear that sailboats in particular are a valued part of Pinecrest Lake and that small boats have been mooring in the southeast part of the lake for decades. PG&E and the STF acknowledge this historic use and believe that allowing a reduced number of sailing and other small boats to moor to buoys in the southeast part of the lake would support this historic use, support the Forest Plan directive related to mooring small boats at Pinecrest Lake, and respond to stakeholder desires without greatly contributing to exceeding carrying capacity. Because small sailing and human-power boats are slower than motorized boats, they require less space (see Tables 1 and 2) than other types of boats, thus their contribution to exceeding carrying capacity would be less than other types of watercraft. In addition, by concentrating mooring to one area, less of the lake would be affected by moored boats than is currently the case.

The Draft SMP proposes using the area in the southeast part of the lake where sailboats have traditionally moored because the area has advantageous wind patterns, good access from roads, nearby parking, and hand-launch facilities. The proposed area for the moored boats is within the middle of the Shoreline Boating Access Use Area (see Exhibit 1 of the Draft Pinecrest Lake Shoreline Management Plan). This location allows for unencumbered watercraft access into Pinecrest Lake within this area, on either side of the area where boats would be moored. Assuming that all boats would be 18 feet in length (many would be less) and would have a 23-foot swing radius, at least 20 boats would be able to moor within this area. Therefore, for the purposes of the initial estimate of the number of mooring buoys that would be appropriate at Pinecrest Lake, 20 mooring buoys are proposed. As described in the Mooring Buoy Program section of the Draft SMP, this number may well be fine-tuned upwards or downwards depending upon factors such as the sizes of boats that drawing winners have, the level of interest in the drawing, and other factors that may change over time.

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